



Serial No. 09/682,630

RD-29301

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In application of

Jiang et.al

Serial No. 09/682,630

Filed: 10/01/2001

For Rhodium, Platinum, Palladium Alloy

:

:

: Group Art Unit: 1742

: Examiner: S.R. Kast

:

**DECLARATION OF LIANG JIANG  
UNDER 37 CFR 1.132**

Honorable Commissioner of Patents and Trademarks,

Washington, DC 20231

S I R:

I, Liang Jiang, declare:

I received the degree of Bachelor of Science in Metallurgy from Chongqing in 1992, the degree of Master of Science in Metallurgical Engineering from the University of Science and Technology of Beijing in 1995, and the degree of Doctor of Philosophy in Metallurgical Engineering from the University of Tennessee in 2000.

In 2001 I joined the research staff of General Electric Corporate Research and Development. My research efforts since joining General Electric have been in large part in the development of advanced high-temperature alloys. The development of alloys based on platinum-group metals has been one of my principal projects.

I am a joint inventor of the subject matter of the patent application noted above. The invention claimed in said application is a high temperature alloy comprising platinum-group metals, and articles made with said alloy. The subject patent application includes several claims directed to alloys comprising specific composition ranges of platinum, palladium, and rhodium. These specific

Mail Stop: \_\_\_\_\_  
Commissioner for Patents, Alexandria, VA 22313  
Date of Deposit: January 11, 2005  
Type or Print Name: Liang Jiang  
Signature: Liang Jiang

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to:

ranges for the elements define an alloy composition region on the ternary Pt-Pd-Rh phase diagram as shown in Figures 1-3 of the subject patent application.

This declaration is submitted as a supplement to the two declarations previously submitted during prosecution of the present case by my co-inventor, Dr. Melvin R. Jackson. As stated in the previous declarations, the selection of alloys having the specific composition ranges recited in claims 35-58 of our application was the result of a comprehensive experimental program designed to discover alloys with desirable combinations of several characteristics that we deemed necessary for use in advanced gas turbine applications. The previous declarations provide details of the experimental program and the unexpected results it generated. In particular, alloys comprising platinum, palladium, and rhodium and having compositions within the claimed range were compared to alloys of the same constituent elements but having compositions outside the claimed range. Results of the comparative analysis were reported in the declaration submitted on November 13, 2002.

This analysis served two purposes. First, it provided data to show the criticality of the claimed range by comparing materials within and without the range. Second, it provided the necessary comparison of the claimed subject matter with the closest prior art, which, in accordance with the Examiner's position taken during prosecution of the present case, is U.S. Patent 3,622,310 to Reinacher et al., hereinafter referred to as Reinacher.

Reinacher discusses alloys of platinum group metals with 0.1-5 percent of one or more dispersion-strengthening elements having an affinity for oxygen, including zirconium, titanium, hafnium, tantalum, aluminum, beryllium, and the like. According to Reinacher, any platinum group metal or mixture of platinum group metals is suitable for embodiments of Reinacher's invention. The alloys compared in the previous declaration consisted entirely of platinum group metals; these compositions differ from those broadly described in Reinacher only insofar as they lack the addition of the dispersion-strengthening elements. Therefore, the comparison of platinum-group alloys within the claimed range to such alloys outside the range provides a sufficient comparison of the claimed subject matter to the material disclosed in Reinacher, the closest prior art.

I finally declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Jan 10, 2005  
Date

Kiang Jia  
Signature